

SEQUENCE LISTING

<110> Jochmus, Ingrid
Nieland, John

<120> Cytotoxic T-Cell Epitopes of the
Papilloma Virus L1-Protein and Use Thereof in Diagnosis and
Therapy

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<160> 77

<170> FastSEQ for Windows Version 4.0

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Ile Leu Val Pro Lys Val Ser Gly Leu

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Arg Leu Val Trp Ala Cys Val Gly Val

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<213> Human papillomavirus type 16

<400> 3

His Leu Phe Asn Arg Ala Gly Thr Val

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Tyr Leu Arg Arg Glu Gln Met Phe Val
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Thr Leu Gln Ala Asn Lys Ser Glu Val
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Ile Leu Glu Asp Trp Asn Phe Gly Leu
1 5

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Ser Leu Trp Leu Pro Ser Glu Ala Thr Val Tyr Leu
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Asn Leu Ala Ser Ser Asn Tyr Phe Pro Thr
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Thr Leu Thr Ala Asp Val Met Thr Tyr Ile
1 5 10

<210> 10

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<400> 10
Tyr Leu Pro Pro Val Pro Val Ser Lys Val
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<400> 11
Tyr Asp Leu Gln Phe Ile Phe Gln Leu
1 5

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Ile Cys Trp Gly Asn Gln Leu Phe Val
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<400> 13
Phe Tyr Asn Pro Asp Thr Gln Arg Leu
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<400> 14
Met His Gly Asp Thr Pro Thr Leu His
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<400> 15
Glu Thr Thr Asp Leu Tyr Cys Tyr
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Gln Ala Glu Pro Asp Arg Ala His Tyr Asn
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Ser Met Val Thr Ser Asp Ala Gln Ile
1 5

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<400> 18
Gly Ile Leu Gly Phe Val Phe Thr Leu
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Tyr Met Leu Asp Leu Gln Pro Glu Thr Thr
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<400> 20
Ser Met Asp Tyr Lys Gln Thr Gln Leu
1 5

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<400> 21
Thr Leu Glu Asp Thr Tyr Arg Phe Val
1 5

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Phe Gln Leu Cys Lys Ile Thr Leu Thr
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Lys Val Val Ser Thr Asp Glu Tyr Val
1 5

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<400> 24
Gln Leu Phe Val Thr Val Val Asp Thr
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<400> 25
Gly Leu Gln Tyr Arg Val Phe Arg Ile
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Met Ser Leu Tyr Leu Pro Ser Glu Ala Thr Val Tyr Leu Pro Pro Val
1 5 10 15
Pro Val Ser Lys
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<400> 27
 Tyr Leu Pro Pro Val Pro Val Ser Lys Val Val Ser Thr Asp Glu Tyr
 1 5 10 15
 Val Ala Arg Thr
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<210> 28
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<400> 28
 Ser Thr Asp Glu Tyr Val Ala Arg Thr Asn Ile Tyr Tyr His Ala Gly
 1 5 10 15
 Thr Ser Arg Leu
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<210> 29
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 <213> Human papillomavirus type 16

<400> 29
 Tyr Tyr His Ala Gly Thr Ser Arg Leu Leu Ala Val Gly His Pro Tyr
 1 5 10 15
 Phe Pro Ile Lys
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<210> 30
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<400> 30
 Val Gly His Pro Tyr Phe Pro Ile Lys Lys Pro Asn Asn Asn Lys Ile
 1 5 10 15
 Leu Val Pro Lys
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<210> 31
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 <212> PRT
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<400> 31
 Asn Asn Asn Lys Ile Leu Val Pro Lys Val Ser Gly Leu Gln Tyr Arg
 1 5 10 15
 Val Phe Arg Ile
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<210> 32
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<213> Human papillomavirus type 16

<400> 32

Gly	Leu	Gln	Tyr	Arg	Val	Phe	Arg	Ile	His	Leu	Pro	Asp	Pro	Asn	Lys
1				5					10					15	
Phe	Gly	Phe	Pro												
			20												

<210> 33

<211> 20

<212> PRT

<213> Human papillomavirus type 16

<400> 33

Pro	Asp	Pro	Asn	Lys	Phe	Gly	Phe	Pro	Asp	Thr	Ser	Phe	Tyr	Asn	Pro
1				5					10					15	
Asp	Thr	Gln	Arg												
			20												

<210> 34

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<212> PRT

<213> Human papillomavirus type 16

<400> 34

Ser	Phe	Tyr	Asn	Pro	Asp	Thr	Gln	Arg	Leu	Val	Trp	Ala	Cys	Val	Gly
1				5					10					15	
Val	Glu	Val	Gly												
			20												

<210> 35

<211> 20

<212> PRT

<213> Human papillomavirus type 16

<400> 35

Trp	Ala	Cys	Val	Gly	Val	Glu	Val	Gly	Arg	Gly	Gln	Pro	Leu	Gly	Val
1				5					10					15	
Gly	Ile	Ser	Gly												
			20												

<210> 36

<211> 20

<212> PRT

<213> Human papillomavirus type 16

<400> 36

Gln	Pro	Leu	Gly	Val	Gly	Ile	Ser	Gly	His	Pro	Leu	Leu	Asn	Lys	Leu
1				5					10					15	
Asp	Asp	Thr	Glu												
			20												

<210> 37

<211> 20
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 <213> Human papillomavirus type 16

 <400> 37
 Leu Leu Asn Lys Leu Asp Asp Thr Glu Asn Ala Ser Ala Tyr Ala Ala
 1 5 10 15
 Asn Ala Gly Val
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<210> 38
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 <213> Human papillomavirus type 16

<400> 38
 Ser Ala Tyr Ala Ala Asn Ala Gly Val Asp Asn Arg Glu Cys Ile Ser
 1 5 10 15
 Met Asp Tyr Lys
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<210> 39
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 <212> PRT
 <213> Human papillomavirus type 16

<400> 39
 Arg Glu Cys Ile Ser Met Asp Tyr Lys Gln Thr Gln Leu Cys Leu Ile
 1 5 10 15
 Gly Cys Lys Pro
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<210> 40
 <211> 20
 <212> PRT
 <213> Human papillomavirus type 16

<400> 40
 Gln Leu Cys Leu Ile Gly Cys Lys Pro Pro Ile Gly Glu His Trp Gly
 1 5 10 15
 Lys Gly Ser Pro
 20

<210> 41
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 <213> Human papillomavirus type 16

<400> 41
 Gly Glu His Trp Gly Lys Gly Ser Pro Cys Thr Asn Val Ala Val Asn
 1 5 10 15
 Pro Gly Asp Cys
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<210> 42
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 <400> 42
 Asn Val Ala Val Asn Pro Gly Asp Cys Pro Pro Leu Glu Leu Ile Asn
 1 5 10 15
 Thr Val Ile Gln
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<210> 43
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<400> 43
 Leu Glu Leu Ile Asn Thr Val Ile Gln Asp Gly Asp Met Val Asp Thr
 1 5 10 15
 Gly Phe Gly Ala
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<210> 44
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<400> 44
 Asp Met Val Asp Thr Gly Phe Gly Ala Met Asp Phe Thr Thr Leu Gln
 1 5 10 15
 Ala Asn Lys Ser
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<210> 45
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<400> 45
 Phe Thr Thr Leu Gln Ala Asn Lys Ser Glu Val Pro Leu Asp Ile Cys
 1 5 10 15
 Thr Ser Ile Cys
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<210> 46
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<400> 46
 Pro Leu Asp Ile Cys Thr Ser Ile Cys Lys Tyr Pro Asp Tyr Ile Lys
 1 5 10 15
 Met Val Ser Glu
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<210> 47
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<212> PRT
<213> Human papillomavirus type 16

<400> 47
Pro Asp Tyr Ile Lys Met Val Ser Glu Pro Tyr Gly Asp Ser Leu Phe
1 5 10 15
Phe Tyr Leu Arg
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<210> 48
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<212> PRT
<213> Human papillomavirus type 16

<400> 48
Gly Asp Ser Leu Phe Phe Tyr Leu Arg Arg Glu Gln Met Phe Val Arg
1 5 10 15
His Leu Phe Asn
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<210> 49
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<213> Human papillomavirus type 16

<400> 49
Gln Met Phe Val Arg His Leu Phe Asn Arg Ala Gly Ala Val Gly Glu
1 5 10 15
Asn Val Pro Asp
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<210> 50
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<213> Human papillomavirus type 16

<400> 50
Gly Ala Val Gly Glu Asn Val Pro Asp Asp Leu Tyr Ile Lys Gly Ser
1 5 10 15
Gly Ser Thr Ala
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<210> 51
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<212> PRT
<213> Human papillomavirus type 16

<400> 51
Tyr Ile Lys Gly Ser Gly Ser Thr Ala Asn Leu Ala Ser Ser Asn Tyr
1 5 10 15
Phe Pro Thr Pro

20

<210> 52
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<400> 52
Ala Ser Ser Asn Tyr Phe Pro Thr Pro Ser Gly Ser Met Val Thr Ser
1 5 10 15
Asp Ala Gln Ile
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<210> 53
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<400> 53
Ser Met Val Thr Ser Asp Ala Gln Ile Phe Asn Lys Pro Tyr Trp Leu
1 5 10 15
Gln Arg Ala Gln
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<210> 54
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<212> PRT
<213> Human papillomavirus type 16

<400> 54
Lys Pro Tyr Trp Leu Gln Arg Ala Gln Gly His Asn Asn Gly Ile Cys
1 5 10 15
Trp Gly Asn Gln
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<210> 55
<211> 20
<212> PRT
<213> Human papillomavirus type 16

<400> 55
Asn Asn Gly Ile Cys Trp Gly Asn Gln Leu Phe Val Thr Val Val Asp
1 5 10 15
Thr Thr Arg Ser
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<210> 56
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<400> 56
Val Thr Val Val Asp Thr Thr Arg Ser Thr Asn Met Ser Leu Cys Ala

1 5 10 15
 Ala Ile Ser Thr
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<210> 57
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 <212> PRT
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<400> 57
 Met Ser Leu Cys Ala Ala Ile Ser Thr Ser Glu Thr Thr Tyr Lys Asn
 1 5 10 15
 Thr Asn Phe Lys
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<210> 58
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 <212> PRT
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<400> 58
 Thr Thr Tyr Lys Asn Thr Asn Phe Lys Glu Tyr Leu Arg His Gly Glu
 1 5 10 15
 Glu Tyr Asp Leu
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<210> 59
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 <212> PRT
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<400> 59
 Leu Arg His Gly Glu Glu Tyr Asp Leu Gln Phe Ile Phe Gln Leu Cys
 1 5 10 15
 Lys Ile Thr Leu
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<210> 60
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<400> 60
 Ile Phe Gln Leu Cys Lys Ile Thr Leu Thr Ala Asp Val Met Thr Tyr
 1 5 10 15
 Ile His Ser Met
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<210> 61
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<400> 61
 Asp Val Met Thr Tyr Ile His Ser Met Asn Ser Thr Ile Leu Glu Asp
 1 5 10 15
 Trp Asn Phe Gly
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<210> 62
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<400> 62
 Thr Ile Leu Glu Asp Trp Asn Phe Gly Leu Gln Pro Pro Pro Gly Gly
 1 5 10 15
 Thr Leu Glu Asp
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<210> 63
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<400> 63
 Pro Pro Pro Gly Gly Thr Leu Glu Asp Thr Tyr Arg Phe Val Thr Ser
 1 5 10 15
 Gln Ala Ile Ala
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<210> 64
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<400> 64
 Arg Phe Val Thr Ser Gln Ala Ile Ala Cys Gln Lys His Thr Pro Pro
 1 5 10 15
 Ala Pro Lys Glu
 20

<210> 65
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 <213> Human papillomavirus type 16

<400> 65
 Lys His Thr Pro Pro Ala Pro Lys Glu Asp Pro Leu Lys Lys Tyr Thr
 1 5 10 15
 Phe Trp Glu Val
 20

<210> 66
 <211> 20
 <212> PRT

<213> Human papillomavirus type 16

<400> 66

Leu	Lys	Lys	Tyr	Thr	Phe	Trp	Glu	Val	Asn	Leu	Lys	Glu	Lys	Phe	Ser
1				5					10					15	
Ala	Asp	Leu	Asp												
				20											

<210> 67

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<212> PRT

<213> Human papillomavirus type 16

<400> 67

Lys	Glu	Lys	Phe	Ser	Ala	Asp	Leu	Asp	Gln	Phe	Pro	Leu	Gly	Arg	Lys
1				5					10					15	
Phe	Leu	Leu	Gln												
				20											

<210> 68

<211> 20

<212> PRT

<213> Human papillomavirus type 16

<400> 68

Pro	Leu	Gly	Arg	Lys	Phe	Leu	Leu	Gln	Ala	Gly	Met	His	Gly	Asp	Thr
1				5					10					15	
Pro	Thr	Leu	His												
				20											

<210> 69

<211> 20

<212> PRT

<213> Human papillomavirus type 16

<400> 69

Met	His	Gly	Asp	Thr	Pro	Thr	Leu	His	Glu	Tyr	Met	Leu	Asp	Leu	Gln
1				5					10					15	
Pro	Glu	Thr	Thr												
				20											

<210> 70

<211> 20

<212> PRT

<213> Human papillomavirus type 16

<400> 70

Met	Leu	Asp	Leu	Gln	Pro	Glu	Thr	Thr	Asp	Leu	Tyr	Cys	Tyr	Glu	Gln
1				5					10					15	
Leu	Asn	Asp	Ser												
				20											

<210> 71

<211> 20
<212> PRT
<213> Human papillomavirus type 16

<400> 71
Tyr Cys Tyr Glu Gln Leu Asn Asp Ser Ser Glu Glu Glu Asp Glu Ile
1 5 10 15
Asp Gly Pro Ala
20

<210> 72
<211> 20
<212> PRT
<213> Human papillomavirus type 16

<400> 72
Glu Glu Asp Glu Ile Asp Gly Pro Ala Gly Gln Ala Glu Pro Asp Arg
1 5 10 15
Ala His Tyr Asn
20

<210> 73
<211> 20
<212> PRT
<213> Human papillomavirus type 16

<400> 73
Ala Glu Pro Asp Arg Ala His Tyr Asn Ile Val Thr Phe Cys Cys Lys
1 5 10 15
Cys Asp Ser Thr
20

<210> 74
<211> 20
<212> PRT
<213> Human papillomavirus type 16

<400> 74
Thr Phe Cys Cys Lys Cys Asp Ser Thr Leu Arg Leu Cys Val Gln Ser
1 5 10 15
Thr His Val Asp
20

<210> 75
<211> 20
<212> PRT
<213> Human papillomavirus type 16

<400> 75
Leu Cys Val Gln Ser Thr His Val Asp Ile Arg Thr Leu Glu Asp Leu
1 5 10 15
Leu Met Gly Thr
20

<210> 76
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 <212> PRT
 <213> Human papillomavirus type 16

<400> 76
 Thr Leu Glu Asp Leu Leu Met Gly Thr Leu Gly Ile Val Cys Pro Ile
 1 5 10 15
 Cys Ser Gln Lys Pro
 20

<210> 77
 <211> 20
 <212> PRT
 <213> Influenza virus type A

<400> 77
 Lys Glu Tyr Leu Arg His Gly Glu Glu Gly Ile Leu Gly Phe Val Phe
 1 5 10 15
 Thr Leu Cys Lys
 20